

(12) **United States Patent**  
**Bdeir**

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(54) **MODULAR ELECTRONIC BUILDING SYSTEMS WITH MAGNETIC INTERCONNECTIONS AND METHODS OF USING THE SAME**

361/688, 704, 707, 715, 716; 439/625, 626, 439/660, 701, 527, 535, 78, 79, 108  
See application file for complete search history.

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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This patent is subject to a terminal disclaimer.

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(21) Appl. No.: **14/696,922**

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(65) **Prior Publication Data**

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**Related U.S. Application Data**

(57) **ABSTRACT**

(63) Continuation of application No. 13/593,891, filed on Aug. 24, 2012, now Pat. No. 9,019,718.

Electrical connectors, electrical modules, and systems are provided. In one aspect, an electrical connector includes a housing defining a side surface, an electrical conductor supported by the housing and including an engagement portion proximate the side surface of the housing. The engagement portion is adapted to engage another electrical conductor of another electrical connector. The connector also includes a magnet supported by the housing proximate the side surface of the housing, a projection extending from the side surface of the housing, and a receptacle defined in the side surface of the housing. In other aspects, an electrical module includes at least one of these electrical connectors. In further aspects, a system includes a plurality of these modules and the modules are selectively couplable together.

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**H05K 1/11** (2006.01)  
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CPC ..... **H01R 13/6205** (2013.01); **H01R 11/30** (2013.01)

(58) **Field of Classification Search**  
USPC ..... 361/792, 728-730, 807, 809, 679.01,

**27 Claims, 16 Drawing Sheets**

